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ABSTRACT

The relationship between self-concept measures of deprived mothers and self-concept measures of their children is re-examined empirically. An accidental discovery was made correlating mothers' pre measures of self-concept to their childrens' post measures of self-concept. (CK)

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A REPLICATION AND AN EXAMPLE OF SERENDIPITY IN EDUCATIONAL RESEARCH

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TM 001 363

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Background and Objectives

A considerable body of research exists linking the child's school-related behavior and achievement with his self-concept measures (Morgan, 1961; Clifford, 1966; Davidson and Lang, 1960; Fink, 1962; Shaw, Edson and Bell, 1960; Shaw and Alves, 1963; Brookover, Thomas and Patterson, 1964). Research findings exist linking self-concept measures to various facets of delinquency and abnormality (Fitts and Hamner, 1961; Fannin and Clinard, 1965; Lefeber, 1965; Balester, 1956; Reckless and Dinitz, 1956). Since self-concept measures relate to many facets of a child's life, it appears meaningful to study factors related to the shaping of the child's self-concept.

Child development and educational psychology literature abounds with statements and findings relating the importance of parents and significant others in the development of the self-concept of the child (Combs and Snygg, 1959; Medinnus and Curtis, 1967; Hurley, 1967; Bayley and Schaefer, 1967; Peterson, et. al., 1967; Gordon, 1959). The present study attempts to re-examine empirically the relationship between self-concept measures of deprived mothers and self-concept measures of their children.

At the 1971 American Educational Research Association convention a paper entitled "Mother-Child Self-Concept Transmission in Florida Model Follow Through Participants" was presented (Tocco and Bridges, 1971). That study was based on 323 sets

of self-concept measures collected on deprived children and their mothers. The How I See Myself (H.I.S.M.) Scale and the Social Reaction Inventory (S.R.I.) were used to assess mothers' self-concept measures and the Children's Self Social Constructs Test (C.S.S.C.T.) was used to assess childrens' self-concept measures (See Appendix A for descriptions of these scales and a brief description of the Florida Follow Through Model). Both sets of data were collected early (pre) in the school year and late (post) in the school year. The following hypotheses were tested:

1. Self-concept measures of mothers are related to self-concept measures of their children.
2. Self-concept measures of mothers recorded at the beginning of the school year are related to change in self-concept measures of their children over the course of the school year.
3. Change in self-concept measures of mothers over the course of the school year is related to change in self-concept measures of their children over the same time period.

Originally, the set of children's pre measures (C.S.S.C.T.) was correlated with the set of mothers' pre measures (H.I.S.M. and S.R.I.) using the canonical correlation analysis. Two of the possible canonical R's were statistically significant, one (.334) beyond the .005 level and the other (.317) beyond the

.05 level. The set of mothers' pre measures was correlated with the set of children's difference (post minus pre) measures, using the same analytical methodology. One of the possible canonical R's (.307) was statistically significant beyond the .05 level. Both sets of difference measures were similarly analyzed; however, no statistically significant R's emerged. See tables one through six under the 1968-69 headings for more complete statistical information on the original results.

Methods, Data Sources, and Results

A replication of the study was undertaken from 1,004 sets of deprived mothers' and childrens' measures (from ten communities in nine states) in an attempt to re-substantiate the above findings. The same canonical analyses were run and the initial results were re-substantiated. By mistake, on the first data run, the canonical program was entered with an incorrect format. The relational result was twice as large (.658, $p < .001$) as any result previously encountered. An examination of the data format indicated that the computation was between the set of mothers' pre measure and the set of childrens' post measures. This relationship was not hypothesized and was discovered fortuitously through error. It is now evident that mothers' pre self-concept measures, using the H.I.S.M. and S.R.I. are related to childrens' post C.S.S.C.T. self-concept measures, clearly a serendipitous finding. See tables one through seven under the 1969-70 headings for more complete statistical information on the

replication and Table eight for similar information on the serendipitous finding.

Importance of Study

The conclusions made as a result of this study were based upon the statistically significant results. These were to re-substantiate that: (1) mothers' self-concept measures are related to chidren's self-concept measures, and (2) mothers' self-concept measures taken at the beginning of the school year are related to change in children's self-concept measures over the course of the school year. The third result was obtained serendipitously, and suggests that mothers' beginning of school year self-concept measures are related to childrens' end of school year self-concept measures. It should be noted that although the variance accounted for in relationships one and two stated above was small, approximately ten percent, the second and third relationships appear to have practical as well as statistical significance. Despite the fact that when using the canonical methodology, the measured relationships is maximized and the resulting estimate of variance accounted for somewhat inflated (Soar, 1962), the second and third relationships appear to have practical as well as statistical significance. With respect to the second relationships, Thorndike (1966) indicated that even in relatively standardized achievement data the correlation between status and growth appears to be about .10. In light of the above, the relationship between mothers' status and their children's

growth appears substantial. The magnitude of the relationship between mothers' beginning of school year measures and childrens' end of school year measures clearly points to practical as well as statistical significance.

TABLE 1

χ^2 Tests of Successive Latent Roots for Pre Canonical Analysis

Number of Roots Removed	Largest Latent Root Remaining		Corresponding Canonical R		Λ		χ^2		D. F.
	68-69	69-70	68-69	69-70	68-69	69-70	68-69	69-70	
0	.112	.090	.334	.300	.718	.858	103.96***	152.45***	60
1	.100	.026	.317	.160	.808	.943	66.83*	58.61*	44
2	.061	.017	.246	.132	.899	.968	33.61	32.80	30
3	.026	.014	.160	.118	.956	.985	14.01	15.31	18
4	.019	.001	.136	.037	.981	.999	5.90	1.36	8

*** .0005 level of significance
* .05 level of significance

TABLE 2

α And β Weights for the First Significant Pre Canonical R

Parent Measures	68-69 $^{\alpha}$	69-70	Child Measures	68-69 $^{\beta}$	69-70
SRI I/E	-.944	-.476	Forced Choice-Mother	4.712	.813
Teacher-School	-.553	-.375	Forced Choice-friends	4.616	.172
Physical Appearance	.553	-.291	Forced Choice-Teacher	4.294	.317
Autonomy	.047	-.368	Forced Choice-Father	3.685	.277
Interpersonal Adequacy	.038	-.202	Identification-Mother	.349	-.210
			Identification-Teacher	.322	.158
			Identification-Father	-.234	.066
			Identification-Friends	-.181	.200
			Realism Color	.157	.474
			Esteem	-.099	.240
			Dependency	-.002	-.261
			Realism-Size	.002	-.124

TABLE 3

α and β Weights for the Second Significant Pre Canonical R

Parent Measures	68-69 α	69-70	Child Measures	68-69 β	69-70
Interpersonal	-1.021	-1.164	Identification-Father	-.624	+.053
Autonomy	.839	- .144	Forced Choice-Mother	-.519	.759
Teacher-School	- .593	.332	Dependency	-.354	-1.12
Physical Appearance	.157	.552	Forced Choice-Teacher	.341	.486
SRI I/E	- .062	.534	Realism-Size	.330	.464
			Identification-Friends	-.226	-.152
			Identification-Teacher	.215	.031
			Realism Color	.177	-1.94
			Identification-Mother	.131	.242
			Esteem	-.090	-.063
			Forced Choice-Father	-.079	.005
			Forced Choice-Friends	-.072	.653

TABLE 4

χ^2 Tests of Successive Latent Roots for Pre Difference Canonical Analysis

Number of Roots Removed	Largest Latent Root Remaining		Corresponding Canonical R		Λ		χ^2		D. F.
	68-69	69-70	68-69	69-70	68-69	69-70	68-69	69-70	
0	.094	.065	.307	.255	.771	.891	81.86*	114.87***	60
1	.077	.026	.278	.160	.850	.953	50.89	47.97	44
2	.043	.010	.207	.099	.921	.978	25.70	22.16	30
3	.026	.007	.161	.084	.963	.988	12.00	12.36	18
4	.012	.005	.110	.073	.988	.995	3.81	5.32	8

*** .005 level of significance
* .05 level of significance

TABLE 5

α and β Weights for the Significant Pre Difference Canonical R

Parent Measures	68-69 α	69-70	Child Measures	68-69 β	69-70
Physical Appearance	.697	.111	Forced Choice-Friends	.931	.104
Autonomy	-.574	.406	Forced Choice-Teacher	.516	.258
Interpersonal Adequacy	.441	.331	Forced Choice-Father	.510	.083
Teacher-School	.265	.405	Identification-Father	-.419	.136
SRI I/E	-.051	.431	Realism Color	.388	.131
			Forced Choice-Mother	.363	.284
			Identification-Friends	-.329	.086
			Identification-Mother	-.296	-.172
			Dependency	-.287	.424
			Esteem	-.206	.122
			Realism-Size	.182	.160
			Identification-Teacher	.029	-.002

TABLE 6

x^2 Tests of Successive Latent Roots for Difference-Difference Canonical Analysis

Number of Roots Removed	Largest Latent Root Remaining		Corresponding Canonical R		Λ		χ^2		D. F.
	68-69	69-70	68-69	69-70	68-69	69-70	68-69	69-70	
0	.098	.048	.314	.218	.799	.897	70.62	108.13***	60
1	.051	.028	.225	.167	.886	.942	38.13	59.68	44
2	.039	.015	.197	.123	.933	.969	21.81	31.54	30
3	.020	.013	.141	.114	.971	.983	9.36	16.37	18
4	.10	.003	.098	.058	.990	.987	3.05	3.35	8

*** .005 level of significance

TABLE 7

α and β Weights for the Significant 1969-70 Difference-Difference Canonical R

Parent Measures	α	Child Measures	β
Teacher-School	.624	Forced Choice-Mother	.489
Physical Appearance	.283	Forced Choice-Teacher	.358
Interpersonal Adequacy	.266	Identification-Mother	-.277
SRI/IE	-.213	Forced Choice-Father	.267
Autonomy	.021	Identification-Teacher	.263
		Realism Color	.225
		Forced Choice-Friends	.204
		Realism Size	.158
		Esteem	.150
		Identification-Friends	.068
		Dependency	-.030
		Identification-Teacher	.010

TABLE 8

χ^2 Tests of Successive Latent Roots for Pre-Post 1969-70 Canonical Analysis

Number of Roots	Largest Latent Root Removed	Corresponding Canonical R		χ^2	D. F.
0	.436	.660	.532	628.69****	60
1	.027	.163	.942	59.55	44
2	.024	.153	.968	32.76	30
3	.006	.078	.998	8.56	18
4	.003	.050	.998	2.49	8

**** .001 level of significance

TABLE 9

α and β Weights for the 1969-70 Significant Pre-Post Canonical R

Parent Measures	α	Child Measures	β
Interpersonal Adequacy	.399	Forced Choice-Friends	1.252
Autonomy	.365	Forced Choice-Teacher	1.248
Teacher-School	.342	Forced Choice-Mother	+1.205
SIR/IE	.329	Forced Choice-Father	1.193
Physical Appearance	.017	Dependency	.111
		Realism-Size	.094
		Realism Color	- .064
		Identification-Friends	- .049
		Identification-Father	.026
		Identification-Mother	- .025
		Esteem	- .024
		Identification-Teacher	- .016

Appendix A

INSTRUMENTS

The instruments used to assess the self-concepts, by way of the self-report were for children, the Children's Self Social Constructs Test (Long, Henderson, and Ziller, 1967); and for parents, the How I See Myself Scale (Gordon, 1968), and the Social Reaction Inventory (Gordon, 1968).

The Children's Self Social Constructs Test. The Children's Self Social Constructs Test, developed by Long, Henderson, and Ziller (1967), gives rise to twelve measures which are esteem, dependency, identification with mother, identification with father, identification with friends, identification with teacher, realism size, realism color, forced choice mother, forced choice father, forced choice friends, and forced choice teacher. Split-halves tests of reliability on the pre-school C.S.S.C.T. factors have revealed reliabilities ranging from .48 to .85 with a median have relability of .73 (Long, Henderson and Ziller, 1967). Long, Henderson, and Ziller (1967) have fully discussed content and construct validation for each factor on the C.S.S.C.T.

The How I See Myself Scale. The How I See Myself Scale developed by Gordon (1968) gives rise to four factors which are Interpersonal Adequacy, Physical Appearance, Autonomy, and Teacher-School. Test-Retest reliabilities for these four factors were reported as .86, .58, .54, and .68 respectively

(Gordon, 1968).

The Social Reaction Inventory. The Social Reaction Inventory is a modification of the Rotter Internal-External Scale (Gordon, 1968). The items on the Rotter (1966) Internal-External Scale were rewritten on a fourth-grade vocabulary level so as to make it usable on disadvantaged mothers. The Social Reaction Inventory gives rise to one score which is a measure of perceived Internal vs. External control of environment. Test-Retest reliability on the Social Reaction Inventory was reported as .78 (Gordon 1968). Gordon (1968) discussed content and construct validation of both the How I See Myself and the Social Reaction Inventory.

THE FLORIDA FOLLOW THROUGH MODEL

Home intervention is the key element of the Florida Follow Through Model. The home intervention agent is the Parent Educator. This person typically is a mother from the local community who is highly aware of the social problems facing the children with whom she works. Because she is local, generally she "talks the same language" as the parents she deals with. She functions in many roles. She works with children in the classroom and visits their homes. During her home visitations she presents educational tasks to the mother. She works with the mother until she is confident that the mother can present the task to the child in an appropriate manner. The Parent Educator serves

in liaison between the home and the school. The Florida Follow Through Model does not conceive of the Parent Educator as a "teacher aide" in the traditional sense of that position; rather, she is viewed as a viable, active part of the educational process.

BIBLIOGRAPHY

Adler, A. *The practice and theory of individual psychology.* New York: Harcourt, 1927.

Balester, R. J. *The self-concept and juvenile delinquency.* Doctoral dissertation, Vanderbilt University, 1956.

Bayley, N. & Schaefer, E. S. Maternal behavior and personality development : Data from the Berkeley growth study in *Readings in the psychology of parent-child relations*, G. Medinnus (Ed.) New York: John Wiley and Sons, 1967, Pp. 157-169.

Bracht, G. H. & Glass, G. V. The external validity of experiments. *American Educational Research Journal*, 1968, 5, 437-474.

Brookover, W., Thomas, S. & Paterson, A. Self-concept of ability and school achievement. *Sociology of Education*, 1964, 37, 271-278.

Combs, A. W. & Snygg, D. *Individual behavior.* New York: Harper and Brothers, 1959.

Cooley, W. W. & Lohnes, P. R. *Multivariate procedures for the behavioral sciences.* New York: John Wiley and Sons, 1966.

Davidson, H. H. & Lang, G. Children's perceptions of their teacher's feelings toward them related to self-perception, school achievement, and behavior. *Journal of Experimental Education*, 1960, 29(2), 107-118.

Fannin, L. F. & Clinard, M. B. Differences in the conception of self as a male among lower and middle class delinquents. *Social problems*, 1965, 13, 205-214.

Fink, M. B. Self-concept as it relates to academic underachievement. *California Journal of Educational Research*, 1962, 13, 57-62.

Fitts, W. H. & Hamner, W. T. *The self-concept and delinquency.* Nashville: Nashville Mental Health Center, 1969.

Gordon, I. J. *Children's views of themselves.* Washington: Association for Childhood Education International, 1959.

Gordon, I. J. *A test manual for the How I See Myself Scale.* Gainesville: Florida Educational Research and Development Council, 1968.

Gordon, I. J. *The Florida parent education model* in Research reports, Institute for Development of Human Resources, I. Gordon (Ed.) Gainesville: Institute for Development of Human Resources, 1969a. Pp. 68-75.

Gordon, I. J. Unpublished data, 1969b.

Heider, F. *The psychology of interpersonal relations.* New York: John Wiley and Sons, 1958.

Hurley, J. R. Parental acceptance-rejection and children's intelligence in *Readings in the psychology of parent-child relations*, G. Medinnus (Ed.) New York: John Wiley and Sons, 1967, Pp. 106-116.

Jersild, A. T. *In search of self.* New York: Teachers College Bureau of Publications, 1952.

Kelly, G. A. *The psychology of personal constructs.* New York: Norton, 1953.

Kuethe, J. L. Prejudice and aggression: A study of specified social schemata. *Perceptual and Motor Skills*, 1964a, 18, 107-115.

Kuethe, J. L. Male-female schemata of homosexual and non-homosexual penetentiary inmates. *Journal of Personality*, 1964b, 32, 23-31.

Lefeber, J. A. *The delinquent's self-concept.* Doctoral dissertation, University of Southern California, 1965.

Lewin, K. *Principles of topological psychology.* New York: McGraw, 1936.

Long, B. H., Henderson, E. H., & Ziller, R. C. *Manual for the self-social symbols methods.* Test manual, University of Delaware, 1967.

Mead, G. H. *Mind, self, and society.* Chicago: University of Chicago Press, 1934.

Medinnus, G. & Curtis, F. The relation between maternal self-acceptance and child acceptance in *Readings in the psychology of parent-child relations*, G. Medinnus (Ed.) New York: John Wiley and Sons, 1967, Pp. 103-105.

Morgan, E. M. *A comparative study of self-perception of aggressive and withdrawn children.* Doctoral dissertation, University of Florida, 1961.

Peterson, D. R. et al. Parental attitudes and child adjustment in *Readings in the psychology of parent-child relations*, G. Medinnus (Ed.) New York: John Wiley and Sons, 1967, Pp. 170-179.

Piaget, J. *Judgment and reasoning in the child.* Paterson, N.J.: Litterfield, Adams and Company, 1959.

Purkey, W. W. *The self and academic achievement.* Gainesville: Florida Educational Research and Development Council, 1967.

Reckless, W.C. & Dinitz, S. Self-concept as an insulator against delinquency. AMERICAN SOCIOLOGICAL REVIEW, 1956, 21, 744-746.

Rogers, C. R. CLIENT-CENTERED THERAPY. Boston: Houghton Mifflin, 1951.

Rotter, J. Generalized expectancies for internal versus external control of reinforcement. PSYCHOLOGICAL MONOGRAPHS, 1966, 80(1), 37-48.

Shaw, M.C., Edson, K. & Bell, H. The self-concept of bright under-achieving high school students as revealed by an academic checklist. THE PERSONNEL AND GUIDANCE JOURNAL, 1963, 4, 401-403.

Soar, R. S. Multivariate statistical procedures in predicting teacher-pupil classroom behavior. United State Office of Education Cooperative Research Project No. 1170, University of South Carolina, 1962.

Sullivan, H.S. THE INTERPERSONAL THEORY OF PERSONALITY. New York: Norton, 1953.

Thorndike, R. L. Intellectual Status and Intellectual Growth. JOURNAL OF EDUCATIONAL PSYCHOLOGY, 1966, Vol. 57, No. 3.

Tocco, T.S.; Bridges, C.M., MOTHER-CHILD SELF-CONCEPT TRANSMISSION IN FLORIDA MODEL FOLLOW-THROUGH, paper delivered at A.E.R.A. convention, 1971.

Wattenberg, W.W.; Clifford, C. Relationship of self-concept to beginning achievement in reading. United States Office of Education Cooperative Research Project No. 377, Wayne State University, Detroit, Michigan, 1962. (Reviewed by Gertrude Luttgen, CHILDHOOD EDUCATION, 1966 63(1), 58-59.)

Yeatts, P.P., DEVELOPMENT CHANGE IN THE SELF-CONCEPT OF CHILDREN GRADES 3-12. Gainesville: Florida Educational Research and Development Council, 1967.

Zehna, P.W.; Johnson, R.L., ELEMENTS OF SET THEORY. Boston: Allyn and Bacon, 1962.